

Application Serial No. 10/034,785
Attorney Docket No. 03237.0001U2

Examiner Hal Wachsman
Group Art Unit 2857

I. Amendments to Specification

Immediately after the paragraph on page 4 of the specification that begins "Figure 5" please add the following paragraph:

Figure 5-1 is a continuation of Fig. 5;

Immediately after the paragraph on page 5 of the specification that begins "Figure 6C" please add the following paragraph:

Figure 6D is a continuation of Fig. 6C;

Immediately after the paragraph on page 5 of the specification that begins "Figure 7" please add the following paragraph:

Figure 7-1 is a continuation of Fig. 7;

Immediately after the paragraph on page 5 of the specification that begins "Figure 8" please add the following paragraph:

Figure 8-1 is a continuation of Fig. 8;

Immediately after the paragraph on page 5 of the specification that begins "Figure 16A" please add the following paragraph:

Figure 16A-1 is a continuation of Fig. 16A;

Please replace the penultimate paragraph on page 5 of the specification with the following amended paragraph:

Figure 16B is a continuation of Fig. 16A-1; and

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Please replace the last paragraph beginning on page 12 and carrying over to page 13 of the specification with the following amended paragraph:

Among the constant or fixed parameters that the user is requested to input at the time of registering for the service is OptimalCondenserApproach. This parameter represents the condenser approach recommended by the chiller manufacturer or otherwise (e.g., by empirical measurement) determined to be optimal. Rather than input such a parameter, the user can opt at registration time to compute an EstimatedCondenserApproach based upon the age of the chiller. The user thus inputs the age of the chiller. For a chiller ~~1-10 years old made during 1990 or later~~, EstimatedCondenserApproach is set to a value of one; for a chiller ~~11-20 years old made during the 1980s~~, EstimatedCondenserApproach is set to a value of two, and for a chiller ~~more than 20 years old made before 1980~~, EstimatedCondenserApproach is set to a value of five.

Please replace the last paragraph beginning on page 19 and carrying over to page 20 of the specification with the following amended paragraph:

The user can opt at registration to use an estimated evaporator approach based upon the age of the chiller rather than one specified by the chiller manufacturer or other means. If the user does not enter an OptimalEvaporatorApproach, then an EstimatedEvaporatorApproach is set to a value of three ~~if the chiller is ten or fewer years old was made during 1990 or later~~, a value of four if the chiller ~~is 11-20 years old was made during the 1980's~~, and a value of six if the chiller ~~is more than 20 years old was made before 1980~~. These constant values are believed to produce accurate results and are therefore provided as examples, but any other suitable values can be used. EstimatedEvaporatorApproach is then compared to FullLoadEvaporatorApproach. If EstimatedEvaporatorApproach is greater than FullLoadEvaporatorApproach, there is no efficiency loss. If FullLoadEvaporatorApproach is greater than or equal to

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EstimatedEvaporatorApproach, there is believed to be an efficiency loss of approximately two percent for every unit by which they differ:

Please replace the paragraph beginning on page 20 and carrying over to page 21 with the following amended paragraph:

As noted below, a user can request instructions for diagnosing and correcting the problem. For example, the user can be instructed to check instrumentation for accuracy and calibration and, if found inaccurate or out of calibration, instructed to recalibrate or replace the instruments. The user can also be instructed to review maintenance logs and determine if excess oil has been added and, if so, how much. If indications are that excess oil has been added, the user can be instructed to take a refrigerant sample and measure the percentage of oil in the charge. If the oil content is greater than approximately 1.5-2%, the user can be instructed to reclaim the refrigerant or install an oil recovery system. If these measures do not correct the problem, then the problem may be due to the system being low on refrigerant charge or tube fouling. Some considerations in determining the course of action to take are whether the chiller had a history of leaks, whether [[ls]] the purge indicates excessive run time, whether the chiller is used in an open evaporator system such as a textile plant using an air washer, and whether there has been a history of evaporator tube fouling. If the answers to these questions do not lead to a diagnosis, the user can be instructed to trim the charge using a new drum of refrigerant. If the approach starts to come together as refrigerant is added, the user can continue to add charge until the approach temperature is within that specified by the manufacturer or otherwise believed to be optimal. This indicates a loss of charge and a full leak test is warranted. If adding refrigerant does not improve the evaporator approach, as a next step the user can be instructed to drop the evaporator heads and inspect the tubes for fouling, as well as inspecting the division plate gasket

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for a possible bypass problem, clean the evaporator tubes if necessary, and replacing division plate gasket if necessary.

Please replace the paragraph beginning on page 21 and carrying over to page 22 of the specification with the following amended paragraph:

Screen displays of exemplary graphical user interfaces through which a user can interact with the system are illustrated in Figs. 4-1617. Such a user interface can follow the well-known hypertext protocol of the World Wide Web, with server computer 14 providing web pages to client computer 16 or, in some embodiments, to handheld data device 18. (See Fig. 1.)

Please replace the paragraph beginning on line 17 of page 22 and carrying over to page 23 of the specification with the following amended paragraph:

As illustrated in Fig. 5, a main web page presents the user with various options and lists all chillers 10 that the user has previously identified. In the illustrated example, locations or sites identified as "Admin Bldg." and "Central Plant" are visible in the displayed portion of the web page, along with one chiller at the "Admin Bldg." site, identified as "Chiller #2," and two chillers at the "Central Plant" site, identified as "Chiller #1," "Chiller #2." If the user had not used the service before, no locations or chillers would be listed. Note the "Add Location" hyperlink 80 at the top of the page. In response to activating hyperlink 80, the user is presented with a page (not shown) through which the user can identify a new site having chillers the user wishes to monitor and evaluate. Other options are represented by a "Daily Report" hyperlink 82 (and an equivalent "View Daily Report" button 83), a "Most Recent Readings" hyperlink 84, an "Add User" hyperlink 86, an "Edit Users" hyperlink 88 and a "Download PalmPALM® Application" hyperlink 90. Another option is represented by a "Most Recent Readings" button 92, and still other options relate to the chillers listed at the bottom of the web page. As described

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below, a user can select any one of the listed chillers and view information relating to it, cause efficiency computations to be performed for it, and perform other tasks relating to it.

Please replace the paragraph beginning on line 9 of page 32 of the specification with the following amended paragraph:

Device 18 can be provided with suitable software to perform all or a subset of the computations and other functions described above with regard to those performed by server computer 14. The software can be that referred to above with regard to "Download PalmPALM® Application" hyperlink 90 (see Figs. 5, 6A-~~CD~~ and 7). In alternative embodiments, however, it can be provided with a browser program that allows it to be used in the same manner as client computer 16, exchanging information with server computer 14 using the hypertext transfer protocol of the World Wide Web or a similar protocol. In the illustrated embodiment, device 18 performs a subset of the computations and functions performed by server computer 14 and can be docked or synchronized (sometimes referred to in the art as "hot syncing") with client computer 16 to allow a user to integrate its functions with those the user can perform using client computer 16 as described above. Thus, a user can take device 18 to a site at which chillers are installed, read the chiller instruments and input the measured parameters into device 18, and have device 18 perform some of the computations described above. The user can then return to his or her office and sync device 18 with a desktop computer such as client computer 16 to perform any additional computations that may only be available via server computer 14. Also, the log record created by the user inputting the measured parameters can be uploaded to the database maintained by server 14.